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AND

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PETROLEUM.

DURATION OF THE AMERICAN PETROLEUM WELLS.

At a meeting of the Glascow Philosophical Society a lengthened communication was read from Prof. Rogers (of the Glascow University), at present on a tour through the United States, on Petroleum, its nature, distribution in depth, durability of supply, &c. On the latter subject the writer says:

"It is not to be doubted that every oil well has a "lifetime," or limit to the duration of its productiveness; although in numerous cases the rate of decreasement of yield may not be marked, or even very perceptible, within days, or indeed weeks, though a comparison at intervals of months will almost invariably demonstrate a decided declension. Sometimes, in fact, this reduction of supply is very abrupt, and wells, previously active, cease altogether, as if overtaken by some catastrophe. As a general rule, this rate of declension is noticed in the pump-wells to be slower in proportion as they yield little—or, in other words, the less copious are the more permanent. Furthermore, it is notorious that a "flowing well," starting with (say) a yield of 200 barrels per day, will generally fall off in its product to the extent of 20 barrels in a month's time, while "pumping wells," that in their onset, three years ago, afforded only three barrels daily, will have diminished but little within all that period. Of the "flowing wells" of the whole oil region there is not one which approaches in yield now the product it gave six months ago. The more copious flowing wells have generally ceased their flow after 25 or 30 months; but a few of them have prolonged their supply, though at a much reduced rate, to the limit of three years from starting. Some very recently published interesting statements have appeared in the Boston Daily Advertiser, which confirm this general rule. Writing from north-west Pennsylvania, the narrator mentions that the Buckeye well, not far from Titusville, commenced to flow, in 1861, 800 barrels per day, and it now yields only about eight barrels; also that the well known Empire Well struck oil in 1861, and flowed the prodigious outpour of 3000 barrels per day, and it now "pumps only 60 barrels." He adds that the Ocean Well struck oil six weeks ago, and is flowing 300 barrels per diem.

It is evident, from the facts here stated, that our anticipations of a sustained future supply of petroleum must be based, not on the wells now yielding or active, but upon new explorations, and on the daily addition of fresh exits for the oil, with constantly improving appliances for economically reaching and securing it.

The suddenness of cessation above alluded to is well illustrated in the history of the Empire, the Coquet, and the Jersey Wells. Each of these supplied from 800 barrels per diem downwards, and each abrubtly suspended its flow; but it would have been an error to infer from these ceasings that the oil had become exhausted—for these very wells, and many other similar ones, have, when pumped or otherwise assisted, been made to yield a large supply, though never equal to that they gave when they were spontaneously flowing.

It may serve to elucidate the nature and the causes of this startling stoppage of production in the "oil wells," to bear in mind that it is not so much the exhaustion of the petroleum itself which causes the wells to cease their yield, as the exhaustion of the pent-in and compressed gas, for it is mainly to the elastic tension of this latter substance that we are to attribute the cessation of the oozing forth of the liquid oil.

A conversation followed the reading of the paper, which turned on the distillation of shale, now so rapidly progressing in this neighborhood, when it was stated by two of the members that certain sandstones in the vicinity of the city were found to be saturated with petroleum. It was also not considered beyond probability that we might "strike oil" some day in one of the outlying coal districts, which nearly march with the limits our extended municipality.

THE RAILROAD RIVALRIES FOR THE OIL TRADE.

At a meeting of the managers of the Pennsylvania and Philadelphia and Erie Railroad Companies, the details of a contract were agreed upon with two experienced contractors, to construct a railroad from Irvine to Oil City, a distance of fifty-three miles, with three miles of sliding, and to furnish the same with locomotives and cars, the whole to be completed with the equipments next May. The necessary means are to be raised by the issue of $1,300,000 of 7 per cent. bonds by the Warren and Franklin Railroad Company, endorsed by both the Pennsylvania and the Philadelphia and Erie Railroad Companies. This proposed road will be an entirely new outlet for the oil productions of the State.

Pittsburgh is now receiving, via the Alleghany river and Alleghany Valley railroad, about half the total product of the Venango region, the balance going to New York or entering into the consumption of the lake cities. The Philadelphia supply comes almost totally from Pitsburg. From Oil City to New York, via Franklin, Meadville, and Salamanca, the route at present taken by two-thirds the shipments to New York, is 555 miles, and via the Oil Creek railroad and Corry 524 miles. The new route will bring Oil City, within 436 miles of Philadelphia, via the Philadelphia and Erie road, giving Philadelphia an advantage of one hundred and nineteen miles over the Franklin and Meadville route to New York, and 88 miles over the other.

The Catawissa railroad runs from eight miles above Tamaqua, where it connects with the Little Schuylkill road to Milton, where it joins the Philadelphia and Erie. Its length is but 65 miles. Connecting with the Catawissa and the Morris and Essex of New Jersey, the Atlantic and Great Western proposes to reach Franklin under the provision of its Western Central Charter, aided by a little extra legislation. It already has a branch from Franklin to Oil city.

PETROLEUM.—During the past year the exportation of petroleum from all the United States ports has averaged 10,561 barrels per week, equal to an annual exportation of 549,172 barrels. The amount exported is 37 per cent. of the amount raised, and the production of petroleum for the year 1865 is, therefore, estimated at 2,500,000 barrels. The value of this product is stated to be $15,000,000 at the wells, on which the producers have a profit of $12,000,000. As the oil regions of Ohio and Western Virginia have not yet been very largely productive, nearly all this enormous profit belongs to Pennsylvania.

MINING.

THE MINING INTERESTS IN CHILI.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As it will doubtless interest many of your readers to know the actual state of the mining interests in Chili, I annex for publication in your Journal a letter received yesterday from a native merchant in Valparaiso, of great intelligence, which I have carefully translated from the Spanish as follows:—

"DEAR SIR,—Not having any of your letters under reply, this appears to me a favourable opportunity for giving you my ideas on the present state and future prospects of our copper market. Of the different branches of industry here in Chili, that which has suffered most, and most suddenly, is the copper trade, which is almost completely paralysed. That it will be so completely, and soon, is more than probable, if, as we fear they will be, the coaling ports of Lota and Coronel are soon closed. With only English coal to feed them the smelting establishments cannot work, excepting on a very small scale, and at enormous cost; besides which only minerals of a high class can be used, and these are every day more scarce. Already, from the sudden manner of declaring the blockade, ships which were chartered to bring coals to the copper ports have had to go to foreign ports, so that, even without blockading the coal ports, the smelting establishments in the blockaded ports of the North, which are the principal ones, are quite stopped, and those minor ones not blockaded also suffer from the same cause. Thus even three or four months must elapse before these latter can obtain coal, overlooking the probable circumstance of the coaling ports being closed. This cause, and the sudden and complete disappearance of ready money from the North, has put quite a stop to the purchase of ores, which, together with the scarcity and dearness of provisions, has caused the entire stoppage of a great many mines, and materially reduced the produce of the remainder, and has caused the emigration of miners from the copper districts to the agricultural provinces of the interior and South. In fact, the disorganisation of the business of the mining interests is so

complete that, even if peace were to-day proclaimed at least six months must elapse before the production could return to what it was before the war, and this was only little more than half the normal rate. Supposing the war to continue, and that the remaining minor ports be not closed, and granting that the first panic and surprise may have subsided, and business arranged as well as it could be under the circumstances we cannot even count on half our usual production. While estimating thus the probable production, I must remind you that what would have come forward was much less than you would naturally have anticipated judging from former experience, for the effect of the low prices of copper in Europe before the war had begun to show itself in a marked way on production. The great impulse which this business received by means of the high prices current at the begining of last year, and the partial exemption from export duties which obtained at the same time, was far from being sustained and if this was not shown in a later reduction of exports, it was owing to the fact that the smelters could not consume the ores which they received last year, and which have been drawn off this year. This, at any rate, is what has happened to Messrs.———. If, for example, I take the date of September 30, I find their stocks of copper and copper produce at that date last year, reduced to pure copper, were more than 5000 tons, while this year they barely reached 1000 tons. As regards the duration of the war, or the probabilities of peace, I can only tell you that I am very certain that Chili will not consent to the slightest humiliation, even should she have to sacrifice everything else but her honor; nor do I think my country will accept a peace, even should Spain offer it, unless she also offered due reparation. Hoping that these troubles will be settled in one way or another for the sake of peace

I remain, truly yours, &c.———

To show the interests affected by this war, I add the following rough sketch:—The miner in Chili has to suspend work; the mine owner has to stop his works; the merchant in Chili stops shipments, not being able to get copper produce, or ship it if he has it; the shipowner earns nof reight; the captain and crew get no employment; the merchant in England receives no consignments; the smelter has to reduce his work, as well as the manufacturer of fine copper; and the consumer in all parts of the world has to pay a very high price, half as much again as before the war. Even those people who fortunately held copper here when the blockade was announced do not gain in the end, as what they gain now will be counterbalanced by what they will lose during the absence of business.

London, December 15. MERCHANT.

GEOLOGICAL RESEARCHES.

An interesting address, "On some of the Objects of the Manchester Geological Society, and the Best Means of Attaining Them," was delivered by Mr. E. W. Binney, F.R.S., President of the Society. He remarked that he was present when the society was founded 27 years ago, and was, therefore, prepared to speak of what it had done, and what it ought to have done, and then went on to detail the nature of their operations, alluding in turn to the identity or beds, internal heat of the deep mines and the springs of salt water found in them, the structure of coal, ironstones, and building stones, boring and searching for minerals and water, position of shafts, conductors, cages, and ropes, ventilation of mines, and so on. Alluding to the different systems of working coal, Mr. Binney observes that it is too much the custom for persons long acquainted with one system, proved to be adapted to a certain coal field, to wish to introduce it into another district, without looking at the different inclinations of the strata, the character of the roof and floor, and many other circumstances. It will be to judge what systems are best fitted for cheaply, safely, and expeditiously working different seams, so as to obtain the greatest quantity of merchantable coal. The relative advantages of getting coal by blasting and wedging are subjects worth discussing. The practicability of cutting coal by machinery has been advocated by some, and several patents taken out to secure the inventions. Although up to this time attempts may not have succeeded equal to the expectations of the inventors, there is no doubt but that machines will be produced capable of cutting seams of coal under certain conditions. Coal mines, he very truly remarks, are in this country worked not for the national good but for individual profit, and generally with a view to the greatest profits in the shortest time. Landlords in some instances tie their tenants down by exacting large minimum rents, which although, doubtless, calculated and often necessary to compel the tenant to get large quantity, does sometimes compel the latter to commit waste, especially when the royalty is at so much per ton sold. The immediate interests of the landlord and tenant, but especially the latter, whose interest ceases after term of years, has too often been at variance with the true interests of the nation. It would be preposterous to dictate in this country what either landlord or tenant should do with their property, still it is right and proper that the greatest possible profit should be aimed at, but with the least possible waste. It is pretty certain that considerable portions of coal are lost by bad working, often caused by a too eager desire to realise profits, and pay heavy minimum rents. It also very frequently happens that in working the best seams of a district sufficient care is not always taken to preserve uninjured higher and less valuable seams, which, at a future day, may afford an ample return to the miner. With regard to the Duration of Coal, Mr. Binney, considers that the estimates put forth by authors that our coal fields will last for thousand of years, or will be exhausted in a short period, are mere guesses, and often made by parties who have the slightest information possible on the subject they so confidently write upon. The quantity to be obtained will a good deal depend on the price which can be afforded to be paid for the coal. At what depth coals may be wrought in our explored coal fields, and how far we may follow them under the permian and trias formations man cannot at present tell. The address forms one of the most valuable papers which has been presented for some time, and directs attention to the innumerable practical subjects, which are worthy of discussion by all interested. The number of the Society's "Transactions," containing it complete, will be published shortly, and can be obtained through our office.

THE TIN TRADE.

Messrs. Von. Dadelszen and North, under date Nov. 2, write—Early in October there were symptoms of a slight reaction, caused by the rapid advance in the rate of discount and the tightness of the money market, but the continued large purchases for export to America had a strengthening effect, and prices speedily recoverd. The quantity absorbed for the United States has been beyond the most sanguine expectations, and we have reason to believe that some important parcels will still find their way to America. Our home consumption has also been very large, and the smelters have had great difficulty in supplying the wants of the consumers. During the latter portion of the month it became apparent that English tin had become very scarce, and as the smelters refused to sell at fixed quotations, operators, anticipating an advice, bought Straits freely, and a most animated business ensued at gradually advancing prices—in fact, a rise of fully 5*l.* per ton has been established from the lowest price touched early in the month. We have reason to believe that the stock of English tin, both in first and second hands, is all but exhausted; whereas, in former years, we could almost calculate that close upon a thousand tons were held in Cornwall and warehouses here. This is to be accounted for by the large export which has been going on; in September 750 tons English went away, and this has been continued during October. France still abstains from buying any quantity of Straits on this market, under the impression that prices must come down again, and though they have the choice of Banca and English, is obvious that any pressure to buy it either of these qualities is sure to act favorably on the price of Straits. The deliveries from stock have been very large, any amount to fully 800 tons; our stock shows a reduction of 300 tons. On the other hand, about 19,000 slabs of Straits have arrived, a portion of which is not yet landed. The Dutch market has followed the course of ours; there was little animation during the first 14 days of the past month, but as we advanced here prices went up there, until as high as 58 fls., equal to 98*l.* 10s. laid down here, was paid. The quantity of tin shipping at Penang and Singapore, according to the last advices, was not so large as duriug the two previous months, and so long as our supplies remain moderate the prospects of the tin trade are in a very favourable state. No doubt the stock oi foreign tin is very large; still, if we take into consideration the scarcity of Cornish tin, the small stocks held by consumers, and the continued large demand, both for consumption and export, we may fairly come to the conclusion that the position of the article is sound, and the price low, at any rate as compared with those ruling the last ten years.

The quantity of tin now afloat for England is 139 tons against 970 tons last year; and to the Continent 17 tons, against 171 tons last year. Banca seems going out or fashion, and to this we attribute the smal amount of business done: from 93*l.* the price has advanced to 96*l.* cash, but only small lots for consumption, have changed hands.

GAS.

ORIGIN OF CLAY RETORTS.

From a French Point of View.

The first idea of replacing cast iron, by fire clay retorts, for the distillation of illuminating gas, is due to Mr. Grafton, an English engineer, who made the first trial with them at the Gas Works of Passy, (Paris) in the month of April 1825. The Retorts were then made in pieces, (50 pieces forming a retort), and put together in benches at the Gas Works. The joints, incompletely closed, required the use of an Exhauster, but still for the same reason of non-hermeticity of Joints, the gas generated in such retorts was mixed with a great quantity of atmospheric air, decreasing its illuminating power to such a degree as to preclude any further use of clay retorts put up in the style of fractional pieces invented by Mr. Grafton. However, the idea being once started, many attempts were made in England, which, on account of their want of success were never mentioned.

Only ten years after Mr. Grafton's trial and failure, Messrs. Wilson & Manby, then propietors of the Gas Works of Monceaus (Paris), established a shop at the works, for the purpose of manufacturing clay retorts. They turned them out in four sections, still putting them together in the benches In 1837, the same company succeeded in manufacturing retorts in one piece.

By this last mode, the joints disappeared, but the retorts cracked *for reasons well known to day by competent manufacturers*, and leaked so badly that they could not be of any practical use, presenting no economy over cast-iron retorts.

In 1838, Messrs. Wilson & Manby, sold this manufactory to Mr. Bona, who, notwithstanding the general failure of his retorts, accumulated a fortune by selling them all over the continent of Europe, in small lots, to be used as trials.

About the same time, the firm of Joseph Cowen, of Newcastle on-Tyne, England, put up a clay retort manufactory on a large scale. The retorts of this firm have been used all over the universe, but they never have proved to be what is called an entire success. This firm has, however, maintained itself up to the present day, and is the most important manufactory in Great Britain.

Following the example of England, which in part adopted the use of clay retorts, a company in Paris, called "Cie Francaise Pilte Larrieu Bro mton & Cie," was formed and clay retort works put up in the Gas Works of Vaugirard, Paris. The engineer of the Gas Works,

Mr. Meynel, made arrangements with Mr. Joseph Beafay, then the most celebrated crucible manufacture in the capital, and on the first of March, 1840, Mr. Beafay with his foreman, Mr. H. Champenois, commenced work and produced retorts of a quality greatly superior to all those manufactured up to that time. However, the retorts did not all succeed in the first baking; moreover they cracked more or less in the Benches, and it was found impossible to set them up in direct contact with the flame. Therefore the benefits and advantages expected from them, were purely illusory.

In England, things looked about the same if not worse. It is true that clay retorts were more freely used, as fuel in England is abundant and very cheap. Gas engineers of those days did not care much for leakages in the use of clay retorts, as they asserted that the combustion of the escaping gases contributed materially towards heating up their retorts

In 1844, a firm started in Belgium, which delegated an engineer to go to Vaugirard, to study and learn the process of manufacturing clay retorts. Four retort works sprung up suddenly in that country, of which the most important are the works of Mr. Albert Keller, in Ghent. All these facts did not give more favorable results in the use of clay retorts, which were unaltered up to 1852.

The principal cause of this state of stagnation in successful working the clay retorts, was due to the absolute want of knowledge of the ceramical art, by those men who then attempted to manufacture them. The only man at that time, capable of solving this question, Mr. Beanfay, died suddenly in 1844; the task was therefore left to his pupil and successor, H. Champenois, to solve the difficult question. All the countries abounding with fire clay were visited, assays and analyses made of all the clays known. While the investigations were going on, England and Belgium were the only countries left, continuing the use of clay retorts, and there only in some of the large works. In France and other countries, where bituminous coal is very dear, they had all renounced the use of clay retorts, returning to cast-iron. When in 1852 all the industrial papers published to the gas works at large, that the problem of manufacturing clay retorts had been solved, that the retorts turned out by the works of Rive de Gier, by H. Champenois, were not only free from loss of gases, but could be set up in benches without any other support but front and rear walls, that they could be let down and refired without doing them injury, that the gases distilled in them are of an increased illuminating power, the yields more remunerative, and last and not least, that these retorts could be worked without the use of any Exhauster. The works of Rive de Geir, were soon too small to supply the increasing demands for clay retorts. The firm Bousquet Champenois & Co., was then established at Lyons, which manufactory took the lead and acquired a reputation which is not equalled on the continent.

Retorts of this last manufacture, were used by J. K. Brick, then engineer of the Brooklyn Gas Works, and the results were such that in the commencement of 1858, Mr. J. K. Brick did not hesitate in making arrangements with Mr. H. Champenois for organizing the important clay retort works situated near his fire brick works, on Red Hook Point, South Brooklyn. In organizing these works at his own risk, Mr. Brick gave proof of courage and resolution, as the verdict of men, seemingly most competent, was to the effect that the American clays were absolutely unfitted for the purpose of turning out clay retorts. The United States was thus relieved of the tribute they had to pay in importing this article. Succeeding him in the following order, were:

Mr. Headley, of Cleveland, Ohio.
Gautier & Co., of Jersey City.
B. Kreischer, of Staten Island.
Maurer & Weber of New York City.

The gas monopolists of Chicago are about coming to grief as a new gas, made from crude petroleum, is being introduced there. The Chicago Post says that the light of the petroleum gas is fully four times greater than the light of the light of the coal gas, and that it can be made at a very much less cost.

VENTILATION.

General Morin lately read a paper before the French Academy of Sciences on the ventilation of public buildings. The Fundamental principle of good ventilation, he observed, was this:—To draw off the vitiated air from the stratum nearest the floor—that is, in the immediate vicinity of the persons in the room, and to admit pure air through the ceiling or apertures made in the walls close to it. In winter the air to be introduced may be previously warmed by an apparatus placed under the roof; but in summer considerable difficulty is encountered in lowering the temperature of the air to be admitted, since the sun having darted its rays upon the roof during the day the space under the roof is so hot that, instead of admitting cool air, it penetrates into the building at a much higher temperature than that of the interior. General Morin has tried four different plans for cooling the air. The first consisted in making it pass through a space filled with pulverized water—that is, reduced to a sort of dust, as it were, by making two jets of water strike against each other with great violence. By this method the temperature is only lowered by two degrees, and moreover it would require a considerable quantity of water and costly machinery to effect it unless ample water power were at command. The second plan consists in making the air pass along the sides of metallic vessels containing water, which may, if necessory, be cooled with ice; but here again there is the difficulty of giving the cooling surfaces a sufficient development—a condition which can not easily be complied with, and which therefore, in point of fact, renders this method impracticable. The third consists in making openings on that side of the building which is never exposed to the action of the sun, while the vitiated air is drawn off through metallic tubes, the draught of which is increased by the action of the solar rays to which they are exposed. On the side exposed to the sun the windows should be closed with blinds, or in case of skylights the glass panes may be watered outside. The fourth process will be easily applicable as soon as Paris can command abundance of water by the aqueduct of the Dhuys. It imitates the natural effect of rain, and is very efficacious, since one cubic metre and a third per hour will suffice to water 100 square metres of roofing, which will thus be prevented from being overheated by the sun. Applied from an early hour in the morning, and continued as long as the sun shines on the building, it not only prevents the roof from getting hot, but will reduce the interior temperature of the building very considerably, and cool the air admitted into the garret or space under the roof. As this operation of watering need not be performed for more than 60 days every year, the cost for a large railway-station like the Orleans one, for instance, would not exceed 1,000f. each season.

SEEING THROUGH WATER.

The *Edinburgh Review* says:—"Currents in the very bed of a river, or beneath the surface of the sea, may be watched, as Mr. Cambell informs us, by an arrangement that smugglers used in the old days. They sank their contraband cargo when there was an alarm, and they searched for it again by the help of a so-called marine telescope. It was nothing more than a cask with a plate of strong glass at the bottom. The man plunged the closed end a few inches below the surface, and put his head into the other end, and then he saw clearly into the water. The glare and confused reflections and refractions from and through the rippled surface of the sea were entirely shut out by this contrivance. Seal hunters still use it. With this simple apparatus the stirring life of the sea bottom can be watched at leisure and with great distinctness. So far as this contrivance enables men to see the land under the waves, movements under water closely resemble movements under air. Sea weeds, like plants, bend before the gale; fish, like birds, keep their head to the stream, and hang poised on their fins; mud clouds take the shape of water clouds in air, impede light, cast shadows, and take shapes which point out the directions in which currents flow. It is strange, at first, to hang over a boat's side peering into a new world, and the interest grows. There is excitement in watching big fish sweep like hawks out of the sea-weed forest after a white fly sunk to the tree tops to tempt them, and the fight which follows is better fun when plainly seen. Mr. Cambell suggested plate-glass windows in the bottom of a boat; it would bring men and fish face to face; and the habits of the latter could be leisurely watched.

A TOAD UNDRESSING.

Audubon relates that he once saw a toad undress himself. He commenced by pressing his elbows hard against his sides and rubbing downward. After a few smart rubs his sides began to burst open along his back. He kept on rubbing until he had worked all his skin into folds on his sides and hips; then grasping one hind leg with both his hands he hauled off one leg of his pants the same as anybody would, then stripped off the other hind leg in the same way. He then took his cast-off cuticle forward between his fore legs into his mouth and swallowed it; then by raising and lowering his head, swallowing as his head came down, he stripped off the skin underneath until it came to his fore-legs, then grasping one of those with the opposite hand, by considerable pulling stripped the other, and by a single motion of the head, and while swallowing, he drew it from the neck and swallowed the whole.

[This tody was a turn-coat, like others of his tribe, wher. they can fill their bellies by it.—Eds. *American Artisan.*]

LEAD POISONING.

From the London Mechanics' Magazine, August, 1865.

Poisoning by drinking water which has acted on lead, happens far more frequently than is often suspected, and the mode in which the water is rendered poisonous is frequently difficult of discovery. A correspondent of the *Times* states that, from a rural parish where the drinking water is got from draw wells, and there are neither leaden pipes pumps nor leaden pipes to contaminate the water, several of the peasantry went lately to the neighboring county infirmary suffering from lead poisoning. Careful investigation led to the discovery of the lead evil—the so called "tinned" kettles in which the water used for tea and for cooking was boiled. It was ascertained that the "tin" with which the kettles were lined was an amalgam of lead and tin. The adulteration of tin with lead is one of the most common frauds. It is of very great importance to public health that some way of escaping from poisoning by leaded tin should be discovered, and it would be desirable that we should know whether there is any coating for iron which would resist heat and the ordinary action of water, and which could be substituted for what is called "tin." About a year ago a French patent was taken out for such a coating, and the coating is said to have stood very severe tests of heat and acids. Such a coating has also been discovered lately in England. Any one giving accurate information respecting such coatings, would confer a boon upon the public. A very ready test for lead in water consists in taking two tumblers and filling one with water which is known not to have been in contact with lead, the other being filled with the suspected water. Dissolve in each about as much bichromate of potash as will stand on a groat. By daylight ths water in each tumbler will be of the color of pale sherry and water. Cover the tumblers so as to keep out dust, and let them stand in a warm place in a room with a fire by it for twenty-four hours. If the suspected water be free from lead, it will still have the same color as the other, but if there be lead in the water, it will have a more or less opalescent tint, as if a drop or more of milk had been put into it. If there be a great quantity of lead in the water, a very slight film of lead will be deposited on the glass.

COMMUNICATION BETWEEN PASSENGERS AND RIALWAY GUARDS.

Our attention has been called to an invention of Mr. R. F. D. Campell's now represented at the Anglo-Erench Exhibition in the Crystal Palace at Sydenham. The object is to inform the guard and engine-driver of accident immediately such may occur; such as carriage oscillating dangerously, &c. The apparatus is self-acting, without requiring any interferance from a passenger, intelligence being given with certainty even though a carriage be empty. The principle of this invention, as described to us, is, that two ½ in. or ¾ in. tubes are fixed to each carriage, the ends of which tubes are so arranged as to connect of themselves without any trouble, by the mere pushing of the carriages together, and to disconnect by their simply coming away from each other. When a train of carriages thus fitted is formed, with the addition of the guard's van and engine, two air-tight tubes run the whole length of the train. Upon a train starting a fan upon the engine will commence working, drawing the air up tube 1 and blowing it down tube 2, with a speed of at least double that of the train. Now, if a ball be placed in each tube it would be carried one to the guard's van, one to the engine; and by the particular shape of the ends of these tubes when the ball arrives it would cause the air to sound as a whistle to call attention to its arrival. To each carriage the inventor proposes to fix five differently coloured balls (having the number of the carriage to which they belong marked on them) representing five signals such as those already referred to. Passengers could have a similarly arranged signal to tell of what would only be their own wants.

A new railway safety signal has been patented by Mr. John Anderson, assistant general manager of the Edinburgh and Glascow line. This invention is not intended to supersede the ordinary fixed signals now in use, but to be wrought in connection with them, appealing to the ear instead of the eye in all cases where "caution" or "danger" is indicated. The danger-signal at present, it is well known, is worked by means of a chain or wire passing along on pulleys from the station to the signal post, and Mr. Anderson proposes to extend this chain to (say) 600 yards, or any distance, beyond the ordinary terminal point, having at its extremity an arched piece of wood which may be fixed either inside or outside the rails. When the danger-signal on the line is at rest, this piece of wood remains in such a position that it is not interfered with by a passing train, but immediately the signal is put on from the station, the arch is so moved that it must be acted upon by the up-coming train. The arch is passed over by a lever arm depending from the front of the engine, guard-van, or tender, and a gong-bell is set in motion, the action of which may be prolonged for any length of time, and may also be arranged so as to register the fact that an alarm has been given.—*Builder.*

We have heard of the "march of intellect," but we never yet heard of schools on the march. And yet, perhaps, there is no reaon why education should not be carried on peripatetically. Such at least seems to be the opinion of some of our French friends, and of a certain M. Savary, who proclaims himself the head of "The International Polygion Travelling Institution," whose prospectus contains the following: "Young gentlemen of all nations are admitted. The course of study comprises French, German, Spanish, Italian and English. History, geography and archæology will be taught. The school will be continually travelling under the superintendence of a superior person. Each language will be taught in the country where it is spoken with the greatest purity. Towns, monuments, and museums will be carefully and scientifically examined. The next season (October, 1865, to August, 1866) will be devoted to France.

Work on several copper claims, among them the Mistletoe and Pequanna, on the line of the Placerville railroad, is about to be commenced again. These claims are situated on what is believed to be the copper belt running from Copperopolic through Amador and the eastern portion of the county. The ores taken from these claims, certainly denote as rich copper ore in the vicinity as any of the mines that have been fully opened.

POISONS IN DAILY USE.

Poisons are introduced into the system by various means. They are often concealed in food by the ignorant cook or housekeeper, and as ignorantly partaken of by herself and others. Pickles are often poisoned by being scalded in brass or copper kettles; it makes them look green, but that greenness renders them poisonous. Brass or copper vessels ought not to be used for any purpose, unless they are previously scoured very bright; it is better for health to avoid their use for cooking purposes. Brass wash-dishes ought never to be used; they cause sore eyes, eruptions, etc. Water is poisoned by being conveyed in lead pipes, or standing in pails painted in the inside. Milk is poisoned by using such pails for milking. Cheese is often poisoned in the same way, and by using, in its manufactnre, brass, copper, or wooden tubs painted inside.

Ignorance often places a deadly weapon in our choicest article of food, but selfishness often conceals a greater. It manufactures and commends poisons for others in many temptingly disguised forms. Candies, toys, and cakes are ornamented or coloured with various poisons. The blending of colours in various ways, in candies, and on cakes, make them attractive to the eye but destructive to the health of those who use them. Cakes ornamented with colored dust, candies colored in such nice style, toys so highly attractive to children, cause decayed teeth, canker, intestinal inflammation, nauseating headache, colic, spasms, and often convulsions. Confectionery may be prepared without coloring material, so as to be wholesome. Gay colors are made of poisonous materials, that ought never to be introduced into food or drink.

Wall paper—ornamented with beautiful green, pretty yellow, and lively red—often diffuses, through sleeping and sitting rooms, an atmosphere impregnated with a poisonous vapor, that causes headache, nausea, dryness of the mouth and throat, cough, depression of spirits, prostration of strength, nervous affections, boils, watery swellings of the face, cutaneous affections and inflammation of the eyes. These occur in more serious forms in apartments that are not constantly and thoroughly ventilated.—*Home Journal,*

NITRO-GLYCERINE.

Nobel, of Hamburg, who first applied nitro-glycerine to blasting rocks, writes to the New York Herald that he does not understand how the sample, 10 pounds, which exploded at the Wyoming Hotel, could have been ignited; but he has found that organic textures charred by sulphuric acid will ignite nitro-glycerine, and thinks that may give a clue. If lighted by a match, it burns like oil; but if heated to 360° it explodes. It is less dangerous than gunpowder. Three hundred pounds were exploded close to a large building in Stockholm, and did little damage beyond breaking the glass. This must be just the article wanted, if it will explode mildly where it explodes accidentally, and act with three times the force of powder when it is exploded intentionally.

Death from Gas Poisoning.—The coroner for the City and Southwark has held an inquiry relative to the death of a woman who, it was alleged, had lost her life in consequence of a quantity of gas having permeated the earth underneath her dwelling house. The jury returned the following special verdict:—"That the deceased lost her life in consequence of an escape of gas from one of the mains of the Phœnix Gas Company, and the said death was accidental; but the jurors further say that the work of laying the main from which gas escaped was negligently done, and without sufficient intelligent supervision.—*Builder.*

A little over two years ago, says a Placerville paper copper companies were organized in El Derado county by the dozen, and the work commenced on quite a number of claims, and the most encouraging prospects were obtained. Then the stock panic swept over the country and operations almost entirely ceased; four companies withstood for a time the pressure, but eventually had to succumb with one exception— the Keystone Copper Mining Company, located near Cold Springs. This company persevered against all obstacles, and pushed their prospect shaft to a depth of one hundred and eighty five feet, and have finally struck a vein of fine ore five feet in width.

One of the latest strikes is that of the Hanscom Copper mine, in Low Divide district, Del Norte county. This company have been running a tunnel for some two years, and finally, at a distance of 440 feet, recently reached the lode at a depth of 175 feet. The lode opens eighteen inches thick, twelve inches being deep yellow or bronze sulphuret ore, with three inch veins of black oxide on each side, accompanied with all the evidences of a permanent, well-defined ledge. The ground is favorably located for prosecuting the work to advantage. Assays made in San Francisco from average samples of the sulphuret ore, show a yield of about 27 per cent. copper.

PLATINUM MIRRORS.

From the London Journal of Science, July, 1865.

M. Dode, a French Chemist has introduce platinum mirrors, which are greatly admired, and which present this advantage, that the reflecting metal is deposited on the outer surface of the glass, and thus any defect in the latter is concealed. The process, which is patented in France, is described as follows:—Chloride of platinum is first made by dissolving the metal in aqua regia and driving off the excess of acid. The neutral chloride is then dissolved in water, and a certain quantity of oil of lavender is added to the solution. The platinum immediately leaves the aqueous solution and passes to the oil, which holds it in suspension in a finely divided state. To the oil so charged the author adds litharge and borate of lead, and paints a thin coat of this mixture over the surface of the glass, which is then carried to a proper furnace. At a red heat the litharge and borate of lead are fused, and cause the adhesion of the platinum to the softened glass. The process is very expeditious. A single baking, M. Dode says, will furnish 200 metres of glass ready for commerce. It would take fifteen days, he says, to coat the same extent with mercury by the ordinary plan.

The famous Comstock lode, from which the miners of Virginia city (Washoe district) obtain their ore, runs along the mountain side for three miles,—its width is from 100 to 150 feet. Of this grand ledge the Gould & Curry Company have 1,200 feet. No silver veins worth working have yet been found in this vicinity away from Comstock ledge. Nearly one half of the companies working on this ledge have paid dividends.

There are seventy-seven quartz mills working on ore from the Comstock ledge, 22 of which are connected with mines, and 55 are custom mills. They are in four different counties, only about half being in the same county with the mines whose ores they crush. Fifty-four of them are run by steam, twelve by water, and eleven by water and steam combined. They have in all, 1,019 stamps, and their capacity is 1842 tons daily, which is only about two-thirds employed now. The mines this year ran down in daily production to 1,000 tons in June, but are now increasing.

In Shaster county what appears to be a very valuable discovery has been made about three-quarters of a mile from the centre of Whiskeytown in an abandoned prospecting hole, by the side of the road. A very fine ledge was developed very soon. Twenty-five tons of rock crushed yielded $1,620·84.

PETROLEUM STOVE COMPANY.

THE KEROSENE OR PETROLEUM STOVE.

BURNING

THE

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SUCH AS IS

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HEAT ROOMS, BAKE, ROAST,

BOIL, FRY,

BROIL, STEW, AND

HEAT FLAT IRONS.

This is the ONLY STOVE, yet invented, which burns the common Kerosene, or Petroleum Oil, WITHOUT A WICK and is capable of doing all the COOKING, BAKING, WASHING and IRONING of a large family, as quickly as any coal or wood stove—is neat in appearance, and clean, MAKING NO DIRT OR ASHES—requires no room for stowing wood and coal, a light and portable, and may be used in any convenient place in or out of the house, and is guaranteed to be perfectly safe and free from explosion. This Stove must not be confounded with other Stoves offered under the name of Petroleum Stoves, which do not, and cannot, under any circumstances, burn the ordinary Kerosene, or Petroleum Oil, but burn Naptha, an article as dangerous as gunpowder, in the hands of persons unacquainted with its properties.

☞This Stove may be seen in operation at the Office of the Petroleum Stove Co., 171 Broadway, Room 12, where Orders will be received, and State and County rights disposed of on liberal terms.

NATHANIEL FORD, Sec'y. *S. T. McDOUGAL, Pres*

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The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They contain all the modern improvements, French, grand action, harp pedal, iron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

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where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

By the introduction of improvements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
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TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

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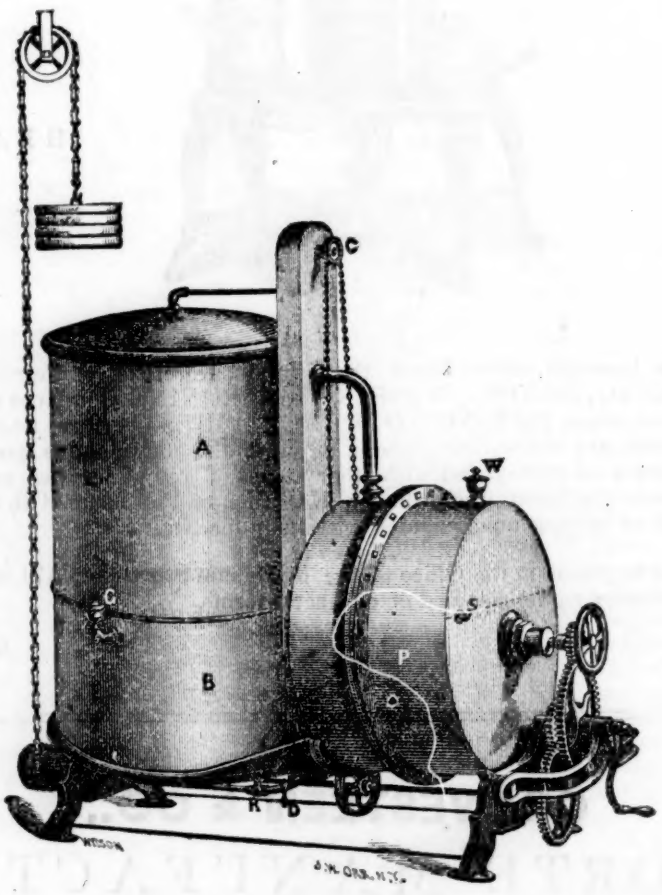
Dwellings. Stores, Factories and Public Buildings.

THE GAS GENERATED BY THIS MACHINE

Is a mixture of the vapor of hydro carbon with common air. The mechanical devices employed are such as, from a long experience and critical examination into the nature of the element brought into use, seem best adapted to secure a certain and satisfactory result. GASOLINE, the liquid employed, is the most volatile portions of Petroleum, of a specific gravity of 0.6587. This liquid exposed to the action of this machine is vaporized, and a close mechanical mixture of the vapor with common air is effected. The value of the gas produced, its permanency, its illuminating quality, and freedom from liability to condensation, depend almost entirely upon the perfect and uniform character of this mixture. Hence the great importance of mechanical means adapted to secure all the conditions requisite in a Portable Gas Machine.



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This machine will produce the most brilliant and steady light, without Fire or Heat, and is warranted to operate in every respect as represented.

The EMPIRE STATE GAS MACHINE is the most SIMPLE and EFFECTIVE MEANS KNOWN FOR PRODUCING GAS WITHOUT HEAT.

Its action is automatic, feeding itself with constant supplies of Gasoline, thus securing steady and uniform supplies of Gas. The gas produced is equal to the best known Illuminating Gas. It is as economical as any other, and is adapted to a wider range of use for Lighting, Heating and Mechanical purposes. It will maintain its illuminating power under as great a degree of cold as any other. It is free from danger with the ordinary care in using gas. Its remarkably pure and steady light is pleasant for the eye. It renders it easy for persons living remote from street gas pipes to enjoy the luxury of a pure GAS-LIGHT, at a COMPARATIVELY SMALL COST, AND WITH LITTLE TROUBLE.

☞ **The public are invited to witness its operations at our store. GASOLINE will be supplied by us, at market prices, or may be obtained from the various other sources of supply now going into operation.**

MITCHELL, VANCE & Co., 620 Broadway, New York,

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GLYCERIN

For Wet Meters, Gasoline Machines, Hydraulic Presses, &c.

We warrant our Glycerine free from acid and not to corrode the Meter metal, or to congeal or freeze at a stated temperature—also, not to evaporate to any extent. The advantages and savings derived from the use of our fluid can be testified by many Gas Light Companies which we have supplied. We only refer to the certificates of H. J. Miller, Esq., President of Cincinnati G. L. and Coke Co., and Dr. J. Lawrence Smith, Professor of Chemistry in the Louisville College, and President of the Louisville Gas Co.

HARTMAN & LAIST,

Office No. 71 Main street, Cincinnati —Chemical Works on Providence st. and Miami Canal, near Findlay st.

CERTIFICATE.

Office Louisville Gas Co., Louisville, June 28, 1865.

This is to certify, that the Louisville Gas Co. have used for about two years, the Glycerine prepared by Messrs. Hartman & Laist of Cincinnati, in their Wet Meters, and have in all instances found it to give most perfect satisfaction. Prior to the use of the above Glycerin, we had employed that manufactured by other parties, and we consider H. & L.'s superior to any we used.

J. LAWRENCE SMITH, President.

Office Cincinnati Gas Light and Coke Co., July 7, 1865.

This will certify, that Messrs. Hartman & Laist of Cincinnati, furnished this Company with Glycerin for Wet Meters some two years since. It has proved very satisfactory, having resisted the action of frost during two winters and evaporating not more than six per cent. per annum, as guaranteed by them. The standard being, for density, 15 deg. Beaume's scale. They were the first to introduce it practically to this Company. H. J. MILLER, President.

☞L. BRUCKMAN, 107 Warren street, up-stairs, Agent for New York.

GLYCERIN

For Filling Wet Meters,

AND OTHER PURPOSES.

We soiicit attention to Glycerin for filling Gas Meters in place of high wines, or any other substance.—Our Glycerin is superior to anything ever used for the purpose, being entirely free from corrosive property, and made from the same material as the finest article for medicinal use. It will not evaporate, consequently there will be no further expence necessary in filling Meters. Glycerin of 15° Baume will stand a temperature of 14° below zero without congealing, and the more concentrated the greater degree of cold it will stand.

We have been engaged in Manufacturing Glycerin the past 8 years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. Finding the wide range that Glycerin would assume in Pharmacy, the Arts and for mechanical purposes, we have entered into the manufacture of articles adapted to the various uses and are now prepared to offer it adapted to every purpose for which it can be used at less than any article now in competition with it. We annex the following letter from S. S. Stratton, Esq., to show practically its advantages.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid.

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

Very respectfully,

S. S. STRATTON, *Sup't Cov. Gas Co.*

The following Gas Companies are using our Glycerin, to whom we refer—

Auburn, N Y—Covington, Ky—Portsmouth, O—Springfield, O—Newburgh, N Y—Ann Arbor, mich—Cincinnati, O—Portsmouth, N H—Xenia, O—Richmond, Ind—Annapolis, md—Dayton, O—Painsville, O—Zanesville, O—Rahway, N J—Baltimord, md—Davenport, Iowa—Manchester, N H—Urbana, O—Boston and Sandwich Glass Company—Buffalo, N Y—Philadelphia, Pa—Ripley, O—Piqua, O.—Terre Haute, Ind—Memphis, Tenn—Keokuk, Iowa—Pomeroy, O.

☞For machinery, concentrated Glycerin possesses superior advantages, not becoming solid at the freezing point of mercury and not affected as oils are by exposure to the atmosphere.

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The "EAGLE" Gas Heating
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Positively guaranteed free from Smoke or Smell.

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The EAGLE GAS STOVES and RANGES have been in use for over Three years, and are found to be the most SIMPLE, COMPLETE and PERFECT Arrangment for HEATING and COOKING, in every respect, ever invented, and to do the Work with LESS TROUBLE, in LESS TIME and at LESS EXPENSE than any Coal or Wood stove.

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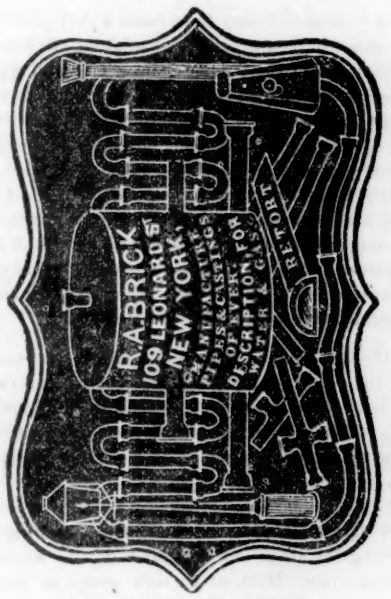

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The Mining and Petroleum Standard

AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, DR. C. W. TORREY, } EDITORS.

TUESDAY, JAN. 16, 1866.

☞ Our subscribers would confer a favor upon us by remitting *checks, or Post Office Money orders*, as we are frequent losers by money sent by mail.

☞ We should be pleased to make our journal an organ of intelligent discussion for those of our subscribers and readers who may wish to gain, or give information on the subjects to which our columns are devoted. We solicit letters from those who make the study of gas a pleasure as well as a profession.

The Bullion Company have made a very interesting gold strike, in their lower drift, and about 150 feet from the south line of the Chollar claim. The gold appears in the hardest and whitest quartz found in the mine, though dark streaks of silver sulphurets are generally to be seen in the same rock, and not far from the gold. In some specimens the gold is so thickly sprinkled that it almost hides the quartz. As the company had not thought of looking for gold in their ore, the rock was thrown upon the dump, and the gold it contained passed unnoticed until the white clay, covering most of it, was washed off by the late rain, when a large number of specimens were picked up from the dump.

In Chicago a building, 80 ft. by 160 ft., five stories high, and weighing 27,000 tons, has recently been raised 2 ft. from its original foundations. It was done by means of 158 screws placed underneath the building and turned simultaneously. The work occupied three days.

The Margarita Copper mine, in Santa Clara county, is turning out about one thousand dollars worth of copper per day. Much of the rock assays as high as fifty per cent. copper.

NEW GUNPOWDER.

I lately visited, says a Berlin correspondent, the powder manufactory of Capt, Schulze, formerly of the Prussian artillery. He established it about a year and a half ago in the neighborhood of Potsdam. The new powder offers so many advantages that I firmly believe it is destined to prove the gunpowder of the future. Various woods, beech among the number, constitute the principal ingredients. The trunk of a tree is moved by machinery under a kind of guillotine, which is driven by steam, and which at every stroke cuts off a fine slice of veneer. These slices, however, differ from the ordinary veneers used for furniture, inasmuch as they are cut across the grain of the wood instead of parallel to it. By this arrangement they are exceedingly brittle, and are easily crumbled up into small pieces about the size of the grains of a very coarse powder. This crumbled wood is then subjected to the agency of one or more acids, washed and dried, by which operation the grains are much reduced in size, and the powder is then ready for use. The chemical process remains a secret, but nitric acid is probably the principal agent employed. I do not know whe her sulphuric acid also enters into the process, as might perhaps be imagined from the analogy of gun cotton ; but, at any rate, the powder when finished contains no sulphur.

The first advantage of this powder is the absence of all danger of explosion during the preparation The manufacture of the black powder is a long and complicated process, and there is considerable danger at every stage of it; whereas the Shulze powder does not become explosive till the whole process is nearly completed. Besides this, it would never be necessary to keep a large stock on hand. One magizine of crumbled wood and another of chemicals would be equally innocent. A few hours' manipulation is sufficient to convert these harmless ingredients into the explosive product required, and if this powder were adopted Erith catastrophes would be a thing of the past.

But, independently of the safety of its preparation, the wood powder in itself possesses many advantages over the black. It burns with a brilliant flame, and leaves hardly any residuum. What it does leave is only a little light feathery dust, which does not cake, and, therefore, does not foul the gun. This is a point of the greatest importance for breech-loaders, in which cleanliness is the first desideratum. Besides this it produces no smell and no smoke.

A discharge of artillery, therefore, would neither suffocate the men nor obstruct their view. It does not try the gun as gun cotton does, and its power is uniform, and therefore admits of accurate calculation. If soaked in water, it needs only to be dried again to be as good as before. Compared with black powder by weight, it is about double the strength; compared by volume, it is about the same strength. It is a little cheaper than black powder, considered with regard to results. The brilliancy of the flame and absence of smoke will make it valuable for pyrotechnical purposes, as also for blasting in mines or tunnels.

The mining ieterests of Calaveras county are reported as flourishing. The copper trade of Stockton is of such importance that, in addition to what is carried as freight by the regulars steamers, the Navigation Company now keep the steamer Helen Hensley and the barges Sacramento and J. Bragden, exclusively employed in the transportation of copper ore.

It has been estimated that the ocean contains 160,000 cubic miles of magnesium—a quantity which would cover the entire surface of the globe, both sea and land, to a thickness of more than eight feet. In obtaining salt from sea-water, the residuum is largely magnesium. It constitutes 13 per cent. of magnesium limestone, a rock found in all parts of the world in enormous quantities. Three years ago all the chemists who had obtained it at all, had probably not obtained an ounce among them. One year ago its price was 112 guineas, $560 in gold per pound. Now, owing to improvements recently introduced, magnesium wire is sold at three pence per foot. It has been suggested that when it shall be cheap enough, vessels of war should be built of it, for whilst but little heavier than heart of oak, it is as strong and tenacious as steel.

COAL AND OIL.—The theory that coal and petroleum do not exist in the same localities has frequently been advanced as evidence that any search for the latter article in the Mahoning Valley would prove futile. This supposed rule has recently been disproved, large deposits of coal having been met with in good oil-producing regions. A coal mine has just been opened on the Eagle Farm, about 1½ mile from Plumer, on Cherry Run, Venango County. The coal is bituminous, and sells on the ground at 50 cents per bushel. In Beaver County, Pa., also, a rich vein of coal was struck a few days since on Two Mile Run, three-fourths of a mile from Beaver, by some parties boring for oil. A good deposit of Cannel coal was met with 15 feet below the surface, and beneath that a fine bed of bituminous coal. —*United States Mining Journal.*

AFFECTION OF A DOG FOR A CAT.

While travelling through the southern portion of New Hampshire, I stopped over night at the house of a friend, who is a sort of Jack-at-all-trades, doing a little farming, and doing it on modern, scientific principles; and from his few acres, cultivated on this plan, he reaps as large crops, and realizes as much net gain as the man who cultivates twice the soil with but half the manure necessary to make it remunerative. It is strange that farmers will expend so much hard labor and get in return so meagre pay. But to our story of the dog. This farmer owned a large black half Newfoundland dog and a fine-looking Malta cat, and he said they ate, played, and slept together. If he missed her he would go around and whine in the most touching manner till he found her, and his joy was exhibited by fondling and caressing most fratyrnally. While the good woman of the house was preparing the supper, the cat and dog lay down together near the stove, and the tea-kettle began to boil over on the stove with a splattering hiss. The dog sprang up and got out of harm's way, but the cat would not take the hint, and the noble dog would rush almost up to her and whine, and then jump back. This did not answer, and with a vigorous spring he caught her by the neck and dragged her away. This affection for the cat and cautiousness challenges our warmest regard for brute instinct. —*Genese Farmer.*

CLARK'S DAMPER REGULATOR.—This ingenious and useful machine, by which the fire is controlled by the pressure of the steam in the boiler, has, after an experience of years in most of our manufacturing establishments, proven to possess invaluable features unattainable by any other device. By its use the steam is always kept at a uniform pressure, it saves grate bars and furnace fronts, besides preventing the straining of the boiler, and withal saves at least *twelve and one-half per centage in fuel*, a matter of prime importance when coal is held at its present high prices. In fact, it is an ever faithful, always reliable, automatic watchman. Thousands of these regulators are now in practical use.

They can be seen in operation at nearly all the newspaper offices, at the Novelty Works, and all the large machine shops, at Harpers, at Heckers, at all the Gas Works, at Hoe's, at the sugar refineries, and in almost any manufactory where steam is used.

The regulator is made of different sizes and can be readily and conveniently supplied to any boiler.

Parties can obtain full information by addressing Clark's Patent Steam and Fire Regulator Co., 117 Broadway, New York.

A Richmond paper estimates that the war has cost the South five thousand eight hundred millions of dollars.

IMPORTANT NOTICE.

To ADVERTISERS.—Our paper offers a snperior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look through our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our terms for advertisers are very reasonable.

NEW YORK, Jan, 15, 1866.

	Bid.	Asked		Bid.	Asked
Copper Stock.			***Gold Stock.***		
Aztec	7		Benton	1	1¼
Bedford	1	1	Consol'd Gregory		28¾
Boston	4½	5	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3¼	4⅛
Canada	3¼	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	—	—	Isaac's Harbor	⅜	⅞
Columbian	—	24	Manhattan	—	9
Copper Falls	—		Mariposa	44	44¼
Clifton	—	$1	Montana	⅜	1
Dacotah	—	5½	New York	2⅜	3
Derby	⅞	1⅜	N. Y. & Nova Scotia	⅜	1¼
Douglass	—	—	Quartz Hill	9¾	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13⅜	Rocky Mountain	—	10⅜
Frue	2¾	5	Smith & Parmelee	7	12
Grand Portage	—	—			
Hancock	12⅜	14	***Coal Stocks.***		
Hamilton	—	6	American	98	100
Hilton	5	6	Ashburton	—	25
Hudson	1	2	Central	62	65
Huron	32	33	Cumberland	61	62
Indiana	8¾	9¾	Del. & Hud. Canal	206	208
Isle Royale			*Hampshire & Balt.	104	110
Keweenaw	—	6	Pennsylvania	213	215
Knowlton	7	10			
Lafayette	1	2	***Lead Stocks.***		
Manhattan	—	—	Bucks County	⅝	⅞
Mendota	—	—	Clute	1¾	1⅞
Merrimac	4¾	5⅛	Erie	—	20
Minnesota	33	37	Macomb	3¾	5
New York, A. P.	2	3⅛	Plancentia Bay	1¾	1¾
N. J. Consolidated	4	4⅜	Sussex	¾	⅞
Norwich	—	6	Wallkill	3½	6
Ogima	5	6¼			
Ontonagon	3	4⅛	***Iron Stock.***		
Penn	—	11⅛	Copake	8	10
Providence	1½		French Creek	¾	1
Quincy	96½		Teal Lake	4½	6
Reliance	1⅛				
Rockland	12½	8	***Miscellaneous.***		
Superior	8¾		Rutland Marble	17	20
Sharon liidated	—		* *Ex. div.*		

NOTICE TO CONTRACTORS.

Sealed proposals will be received at the office of the Mayor of Rochester, until Jan. 20th instant, for the construction of Water Works, for the city of Rochester, N. Y. Maps, Plans, Specifications of the work can be seen at the office of the Mayor, on and after the 20th inst. The contractor will be required to furnish all the materials needed for the work, and to give satisfactory bonds for the performance of the work complete. Communications may be addressed to the Mayor of Rochester, or to the undersigned.

GEO. SHELTON, Sect.

ROCHESTER, Jan., 13th 1866.

THE AUBIN BALLANCED

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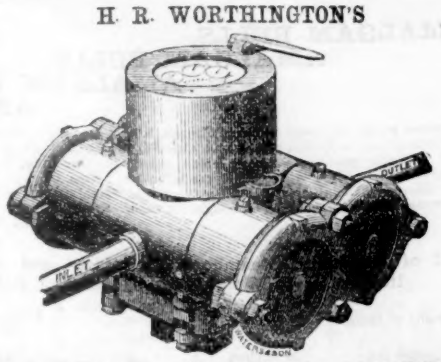

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This Meter is also used for the measurement of Oil —it combines

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225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	34	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	223 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

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It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

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It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

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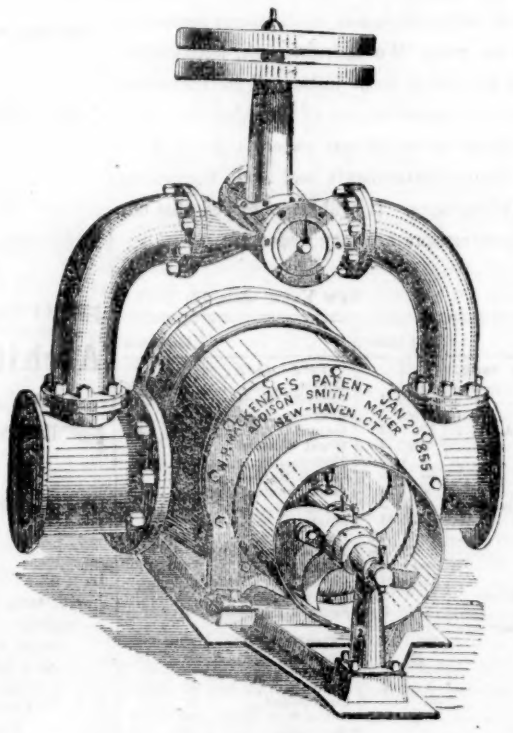

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This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

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COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2. Small Manufacturing, with Extension Table, $75
No. 3. Large Manufacturing, with Extension Table, $85
No. 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably CASH on delivery.

T. J. McARTHUR & CO.,
536 Broadway.

WILCOX & GIBBS SEWING MACHINE

It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1863.
InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

JAMES WILLCOX,
Manufacturer, 508 Broadway, New York
Principal Offices:
NEW YORK—508 Broadway.
BOSTON—323 Washington street.
PHILADELPHIA—720 Chestnut street.
CHICAGO—133 Lake street.
CINCINNATI—70 West 4th street.
LONDON—135 Regent street.
HAMBURG—44 Hermann street.
PARIS—82 Boulevard de Sebastopol.
ST. PETERSBURGH—15 Gorochovay.
VIENNA—9 Wildpretmarket.
BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

GAS-BURNERS.

T. G. ARNOLD,
MANUFACTURER OF
GAS-BURNERS
And Importer of SCOTCH TIPS,
224 and 226 West 21st street,
formerly No. 447 BROOME ST., New York.
Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

C. GEFRORER,
Manufacturer of
GAS-BURNERS,
For Lighting and Heating Purposes.
GAS HEATING AND COOKING APPARATUS; FITTERS' MOVING APPARATUS, &c.
529 Commerce st., bet. Market & Arch, Philadelphia.

WOODEN PURIFYING TRAYS
PATENT
Conically Slotted Solid Wood Sieves
FOR PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy
Brooklyn, L.
Williamsburgh,
Citizens
Baltimore Md.
Louisville, Ky.
Chicago, Ill
Cambridge,
And numerous others

Orders eceived by mail or otherwise.
JOHN L CHEESMAN.
147 Avenue C New York City

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
No. 40 Cortland street,

JOSEPH LENNIG,
1615, 1617, and 1619 Francis St.,
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors. Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS,
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

D. PARRISH, Jr.,
GAS ENGINEER
And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

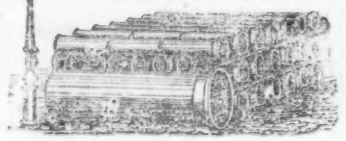
To Manufacturers of Petroleum Gas.
For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

TO GAS COMPANIES.
THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.
CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

THE AUBIN
GAS-WORKS COMPANY,
Of Albany, N. Y.,
Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.
Many Village Gas Companies can be referred to.

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut street,
PHILADELPHIA.



Carrington & Co.'s
GENERAL
PURCHASING
AGENCY,
In Connection with all the Expresses
No. 30 Broadway,
NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a sea ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO.'S GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.
ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. ULLEN
HARNDEN EXPRESS,
By L. W. WINCHESTER, Supt.
KINSLEY & CO.'S EXPRESS,
By E. LITTLEFIELD, Supt.
HOPE EXPRESS COMPANY,
A. D. HOPE, Supt.
BREESE & CO.'S EXPRESS,
By STEPHEN BREESE, Supt
NEW JERSEY EXPRESS COMPANY,
By GEORGE R. DUNN, Sup

The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

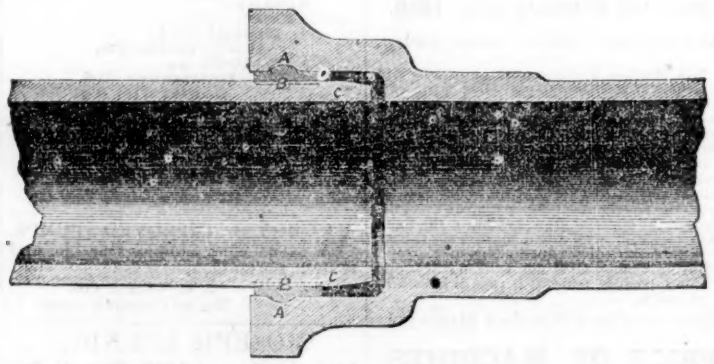
These Improved Machines save ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.
They require no instruction to operate perfectly, except "the printed directions."
No change in sewing from one kind of goods to another.
And no taking apart to clean or oil.
Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.
N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.
Agents wanted in counties not vassed by ur own agents.

Finkle & Lyon S. M. Co.
No. 538 BROADWAY, NEW

SECTIONAL VIEW OF

ROBBINS' PATENT GAS AND WATER JOINT.

AND FOR OTHER PIPES.



A A—Lead Joint, after being pressed; the dotted lines B B show the inside diameter of the Lead Ring before being pressed.

This Joint is made by pressing the spiggot end of the Pipe C into the socket end of the other Pipe, the spiggot end being slightly tapering, compresses the Lead Ring from its first shape, as shown by the inside dotted lines, to the form shown by the dark shading.

For further information, or for prices and terms, which will be very reasonable, apply to

R. C. ROBBINS & CO., No. 218 FULTON STREET, ROOM No. 2, NEW YORK.

LLLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually rotected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in wo or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

	OUTSIDE.			INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	33	35	26	27⅝	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19⅝	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES.

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No. 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

	OUTSIDE.		INSIDE.			
No.	Height.		Hei	Width.	Depth.	Price.
	In.		In.	In.	In.	
1	68		55	39	18	$1,200
2	61		48	39	18	1,050
3	57		42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	53	27	64	48	20	$1,000
0½	61	53	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28		
	42	36	22	38	32	19	
4	36	31	20	32	27		0
5	30	24	18	26	20	14	

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the Am[illegible] CY. 369

WEST'S IMPROVED PUMP.

Anti-F eezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best the market. It is very simple, works to a charm, so that any child may use it; throws a stead continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We sa this knowingly, and give the testimony of our own accord, without the knowledge or request of th proprietor"—*New York Evening Post, July 1st*, 1863.

"J. D. WEST & CO.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 130 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as ni shallow ones."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible, and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & CO.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sunda[illegible], and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 40 Cortlandt st., New York.

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,

Manufacturers, No. 494 Broadway, New York.

Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency,

389 Broadway, N. Y.

Send for a Circular—Agents wanted.

DALTON KNITTING MACHINE CO.,

137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st. It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil-Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

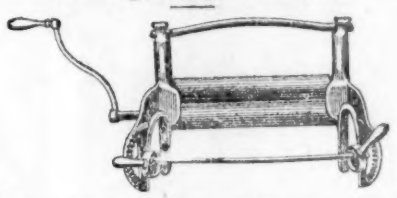
WEED SEWING MACAINE Co.,

136) 506 Broadway, New York

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

13 PLATT STREET, New York,

BENNINGTON, Vt.,

CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diamter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments. I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,

127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.

(LATE CAPT. U. S. V.,)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.

New York.

H. P. GENGEMBRE'S

PATENT

Non Freezing and Non Evaporating

METER FLUID,

☞ Far cheaper than any other in use. ☜

For Filling Wet Gas Meters, cheaper, in the long run, than water.

Seven years of success!

Six years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend the patent with perfect confidence.

For information and purchase of rights, apply to

A. DOISEY, Esq., Sole Agent,

Box 2,180, Cincinnati, Ohio, or to

H. P. GENGEMBRE, Pittsburgh, Pa.

The privilege of using the Patent has been granted in the following cities.

Allegheny City, Pa.; Leavenworth, Kansas; St. Louis, Mo.; Chillicothe, O; New York. N. Y.. Washington, Pa.; Greenbush, N. Y.; Ottawa, N; Y.; Detroit, Mich.; Hannibal, Mich.; Linn, Mass.; Lansinburg, N. Y.; Rock Island, Ill.; Burlington, Iowa; Mount Vernon, O; Troy, N. Y.; Galena, Ill. Pittsburgh, Pa.; Ithica, N. Y.; Akron, O.; New Castle, Pa.; Portsmouth, O; Brooklyn, N. Y.: Mansfield, O.; Steubenville, O.; Fort Wayne, Ind.; Peoria, Ill.; Wooster, O.; Bellefonte, Pa.; Kalamazoo, Mich.; Seneca Falls, N. Y.; Birmingham, Pa.; Saratoga Springs, N. Y.; Salem, O.; Dubuque, Iowa; Newark, O; Wheeling, Va; Jersey City, N.J. Quincy, Ill.; Piqua, O.; and others. [141

New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage,

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

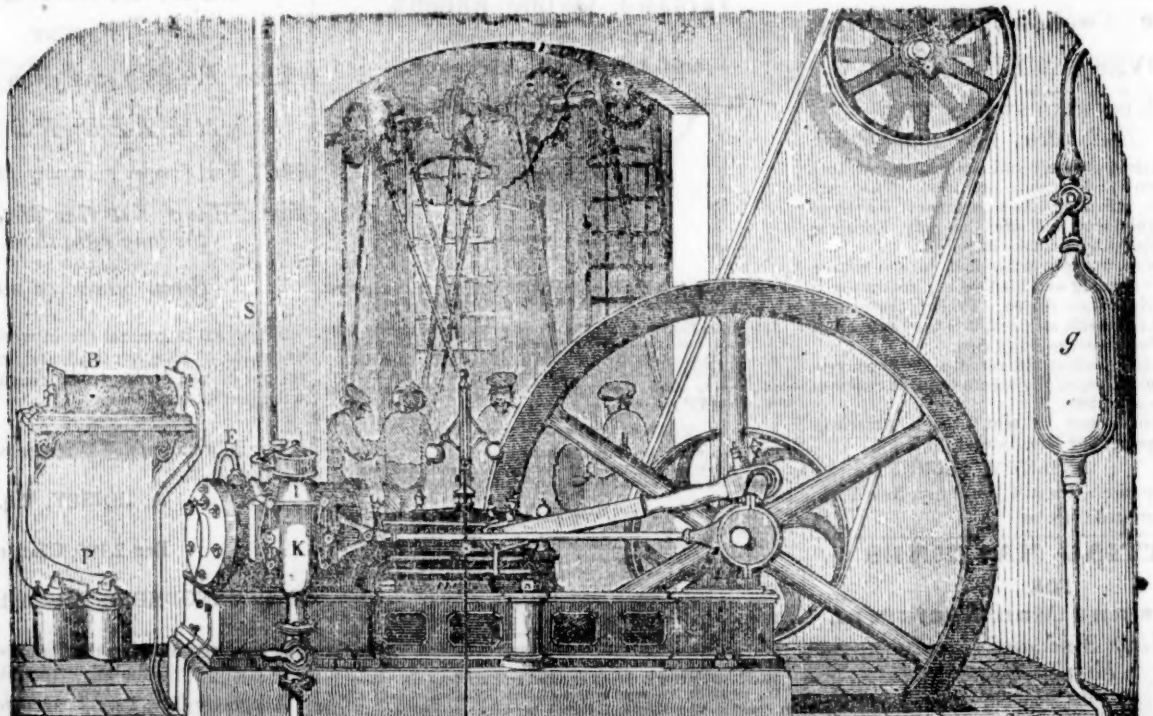
Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors

CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitterz, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy keep in the house.—*New York Weekly Day Book.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distanc from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

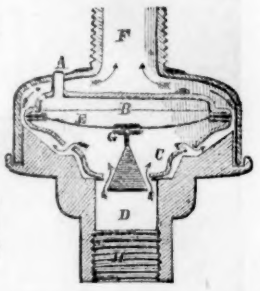
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SAND , Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L GALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 West Twenty Second Street, New York. Arch and Twenty-Second Streets, Philadelphia. No. 23 West Street, Boston will meet with prompt attention.

Harris & Brother, Practical Gas Meter Manufacturers,

Continue, as heretofore, at their old Establishment, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by

HARRIS & BRO., No 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.

JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equaled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

G S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga.

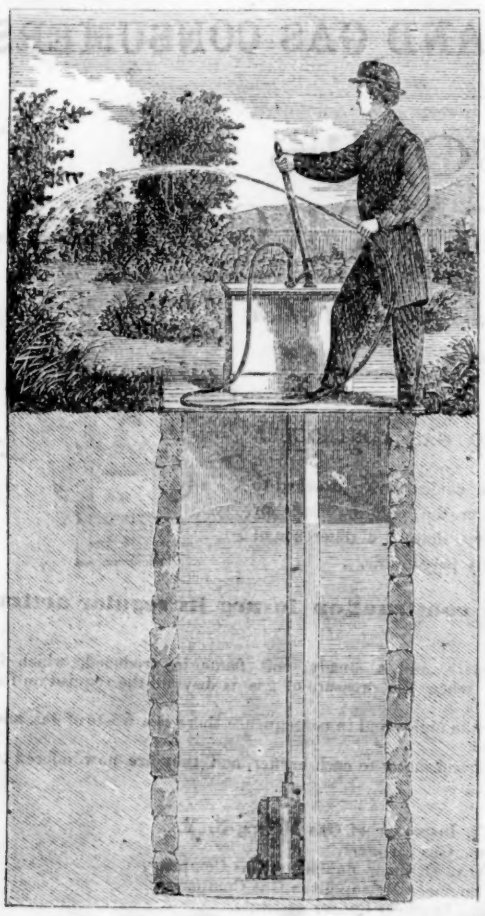
Messrs. Harris & Bro., Philadelphia. Philadelphia, March 4, 1858.

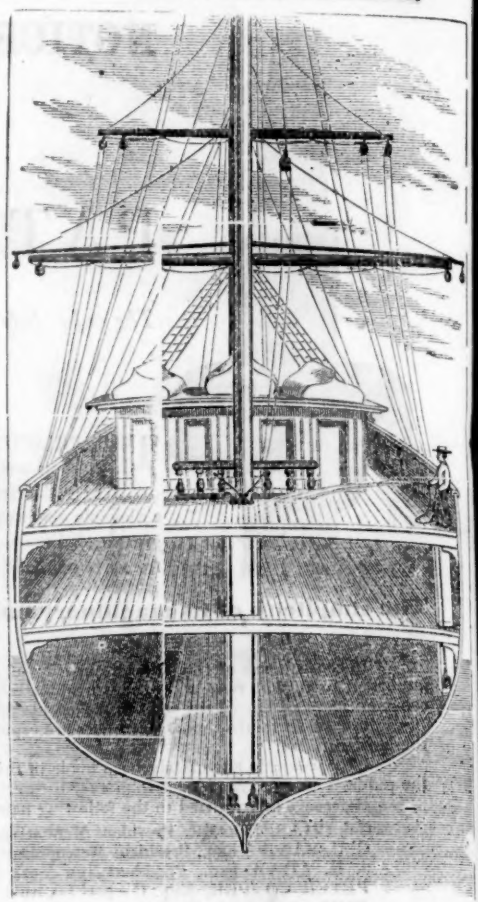
Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly yours, BIRKINBINE & MEARS.

Messrs. Harris & Bro. March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as used in those imported from Europe, or made by any of the manufacturers in the United States. Respectfully Yours, GEORGE W

Inspector of Gas Fittings, Philadelphia





THE AMERICAN SUBMERGED PUMP,

OWNED BY THE AMERICAN PUMP MANUFACTURING CO., NEW YORK.

OFFICE, No. 40 DEY STREET.

ITS ADVANTAGES.

This valuable Invention, now first intooduded, will, it is believed, supersede all clases for any purpose in use at the present time.

FIRST.—SIMPLICITY. The entire pump is composed of but six parts, all of cast-iron, which can be put together by any mechanic.

SECOND.—DURABILITY. From the fact that it is always submerged, it is perfectly lubricated, and requires no packing. As no water can remain in the pipe when not in motion, there is no danger of freezing.

THIRD.—CAPACITY. It is contended that, for the power applied, this Pump excels all others. The No. 1 (the smallest size,) of this Pump, with the power of one hand, has a capacity of thirty gallons per minute, and will throw a stream seventy feet in the air.

FOURTH.—CHEAPNESS. For economy, this Pump surpasses all others, its first cost being about one-third less than that of other Pumps of the same capacity, and being much less both in size and weight, there is a great saving in transportation.

ITS USES.

FIRST.—For a House Pump; the smallest size of the patent Submerged Pump is sufficient for all family purposes. Placed in a well or cistern, water may be conveyed to every room in a common sized house.

SECOND.—For a Farm Pump; for all purposes connected with irrigating, watering stock, etc., etc. This Pump can be placed in running streams, ponds, bayous, etc,, and water conveyed to any required distance.

THIRD.—For a Ship Pump; Any ship owner or captain, with short experience in the use of this Pump, will give his unqualified approval for ship purposes, either to be used as a bilge pump simply, or for washing decks, etc. From its simplicity, as a bilge Pump it will be found entirely free from choking, and will clear grain, dirt, stones, etc., with ease.

FOURTH.—For a Factory Pump, or for air in Oil Wells, for Breweries, or for pumping acids, hot liquors, etc., it is invaluable. It cannot be affected by any liquid.

FIFTH.—To all Directors and Officers connected with mining interests, the PATENT SUBMEAGED PUMP presents great advantages.

The experience of the last five years have clearly proved at what great expense, both in first cost and freight, it has been necessary to be at to secure the proper means of expelling water from the mines, quarries, etc. With this Pump an immense saving is effected in both instances, as in first cost it is much less than other Pumps of the same capacity and power.

Its princeple is that of a Double-acting Force Pump, with a heavy double-acting piston cast in one piece, and a double-acting iron valve within the same, without the use of leather valves or any packing whatever.

RECOMMENDATIONS.

Office of the American Ship Building Company, New York, Oct. 24, 1864.

I am very much pleased with the economy and simplicity of the American Pump, which I have examined with much interest. IT IS ADMIRABLY ADAPTED FOR SHIP PURPOSES, and from its GREAT POWER would do incalculable service in the event of LEAKAGE. It also works well in pumping, where the cargo consists of grain in bulk, and is free in its action.

AUGUSTUS WALKER, Marine Constructor.

New York, October 26, 1864.

To the American Pump Manufacturing Co.:

I have examined with much interest the working and results of the Double Action Force Pump which you are introducing in the market. For use as a Ship Pump and for Mining purposes, I consider it of great value, the results far exceeding anything of the kind presented to my observation, particularly for its GREAT POWER and SIMPLICITY. It will give me pleasure to recommend its introduction into the Navy. Please deliver as soon as possible the Pumps ordered by me last week, for the Mines of the Middlefield Fire and Building Stone Company of Massachusetts, and oblige. Yours, respectfully, CHARLES B. STUART, Consulting Engineer, U. S. N.

Office of the Neptune Iron Works, New York, February 6, 1865.

the American Pump Manufacturing Co.:

I was very much impressed in examining the Pump manufactured by your Company. The originality of the design is in good keeping with its simplicity of construction—certainly very desirable qualities in all mechanical combinations. The extensive demand is the best proof of the popularity and favor it is receiving from the public. I have no hesitancy in recommending it to the inspection of those wishing THE BEST PUMP in the country.

CHARLES HUBBARD, JR.,
Superintendent.

Office of Donald McKay,
East Boston, Aug. 15, 1865.

Alvin Walker, Esq., Sec. American Submerged Pump Co

DEAR SIR:—In answer to your request for my opinion of your Patent Submerged Pump, will say, that for simplicity, compactness and durability, it has the appearance of being the BEST mechanical combination I have seen, having fitness combined with its simplicity, making it SUPERIOR to Pumps now generally used for general purposes on land. Also, well suited as a Ship Deck Pump, and, in my opinion, can be arranged to be readily used as a good Bilge Pump for Ships.

Yours truly,
HRMAN WINTER

CAMP PAROLE, ANNAPOLIS, Md., April 22, 1865.

Wm. Numson, Esq., President, Baltimore:

DEAR SIR,—The No. 2 Pump has been properly adjusted, and works to our entire satisfaction Hoping you may be successful in introducing it to the public, we remain,

Very respectfully, yours, &c.,
JONES & CROWLEY.

(Letter from the President of Board of Common Council, City of Boston)

Boston, August 10, 1865.

A. Walker, Esq., Sec. American Submerged Pump Co.—

Dear Sir—In reply to your request for the results of the trial of one of your Pumps, I will briefly state the purpose for which it was needed, and the complete satisfaction attained. It was desired to clean out a well 42 feet in depth, in which there stood 10 feet of water; I had previously vainly tried several methods, in one of which one large Force Pump and as many buckets as could be used, succeeded in 10 hours in reducing the depth of the water to 9 feet, but beyond that nothing could be gained. I then put in one of your smallest Pumps, which drained the well completely in Six Hours: although the spring which fed the well yielded a stream of water about as large as a man's arm. I need not say that I consider the Pump fully capable of accomplishing what you claim for it. Yours truly, W. B. POW

I can fully endorse the above statement. [illegible]